SYDNEY FISH MARKET

SEAFOOD HANDLING GUIDELINES

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SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

INTRODUCTION

Sydney Fish Market (SFM) is Australia's seafood centre of excellence and strives for the highest levels of quality and customer satisfaction.

SFM voluntarily introduced its Quality Assurance Program, incorporating the Hazard Analysis Critical Control Point (HACCP) system in October 1998. Since then SFM has worked to ensure all products sold across SFM's market floor and all meals prepared at Sydney Seafood School stringently adhere to this standard.

SFM's Quality Assurance Program and HACCP systems are designed not only to ensure that the seafood sold by SFM is safe to eat but also to ensure that the highest levels of quality, truth in labelling and customer satisfaction are achieved. Consisting of documented policies, procedures and specifications, the Quality Assurance Program and HACCP system is audited annually against internationally recognised standard ISO 22000:2018 by accredited external auditors.

In 2005, SFM was the first Australian company to be certified to the Australian Seafood Standard and in October 2007 to the Australian Fish Names Standard. On a regular basis SFM surveys its registered Buyers and frequently meets with a representative committee for the Buyers, to ensure that it clearly understands the needs of Buyers when they purchase seafood through SFM.

This manual is a clear representation of not only the key methods of storage and handling of seafood, but what Buyers value when purchasing product through SFM.

By consistently following the practices suggested in this manual, Suppliers will have improved size grading, greater freshness and longer shelf life for their seafood, allowing them to command premium prices in the marketplace for their products.

Buyers will also use this guide to understand quality standards, regulations, handling and storage requirements.

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SECTION 1: SEAFOOD SPOILAGE

TEMPERATURE

The primary cause of seafood spoilage is **product stored at too warm a temperature**. Therefore, making sure that seafood is kept at the optimal temperature is crucial in ensuring superior product quality, freshness and maximum shelf life.

It has been proven that fresh or wet seafood begins to deteriorate as soon as it is caught, or harvested, and then killed. This deterioration is irreversible, and the rate at which deterioration occurs is determined by temperature.

As Table 1.1 illustrates, the optimal range for storing and/or transporting fresh seafood is between -1˚C and +5˚C. The rate of deterioration compounds as the product temperature increase[1] e.g. seafood stored at 4˚C will deteriorate twice as fast as seafood stored at 0˚C. At 10˚C seafood deteriorates four times as fast as the same seafood stored at 0˚C. At 16˚C it deteriorates six times as fast. Therefore, even when keeping seafood at 4˚C, which is within the recommended range, it will still spoil twice as fast as it will at 0˚C. For example, cooked King Prawn would stay at peak optimum condition for 4 days at 0˚C, only 2 days at 4˚C and only 1 day at 10˚C.

Put simply, the warmer the product, the shorter the shelf life. **So the golden rule is keep it cool!**

OTHER CAUSES OF SPOILAGE

Other causes of seafood spoilage include:

- Physical damage caused by gaffs or other fishing equipment or poor handling methods. This includes scale or skin damage and leaching of skin/ gill colour when incorrectly using an ice slurry process to chill fish down.
- Contamination or lack of hygiene. This occurs when the product comes into contact with contaminated environments including dirty boats or equipment or physical contaminants like dirt, diesel or grass.

SPECIFIC CAUSES OF SEAFOOD DETERIORATION

BIOCHEMICAL

The progressive breakdown of the amino acids that are responsible for freshness and good taste will cause seafood to deteriorate. The development of this process can be observed through the stages of rigor mortis:

Pre-rigor: soft, limp and flexible muscles
In rigor: stiff, inflexible muscles
Post-rigor: soft, limp and flexible muscles

This enzymic biochemical process cannot be stopped, but it can be slowed down by keeping temperatures as low as possible.

MICROBIOLOGICAL

Micro-organisms that are naturally present in the gut and skin of seafood start to multiply and decompose the tissue structure once the fish is dead, affecting the texture, colour and smell of seafood. This process can be slowed down by keeping temperatures as cool as possible.

GAPING

Gaping occurs when the connective tissue between the muscle breaks up. It is caused by either storing the product at a high temperature during rigor mortis or rough or incorrect handling after rigor mortis has occurred.

ENVIRONMENTAL

Industrial and natural pollution can cause seafood to deteriorate. Examples include naturally occurring seafood toxins found in both shellfish and finfish, and parasites.

Note: Seafood in the early stages of deterioration caused by enzymic activity will not generally harm the consumer, although it may become unfit for sale because the quality or nature of the seafood has changed. Later bacterial spoilage however, may represent a health risk to the consumer, while deterioration arising from environmental contamination at any stage can be harmful to the consumer.

[1] *Boulter, M., Poole, S. Bremner, A. Australian Quality Index Manual, 2006. Fisheries Research and Development Corporation and Sydney Fish Market.*

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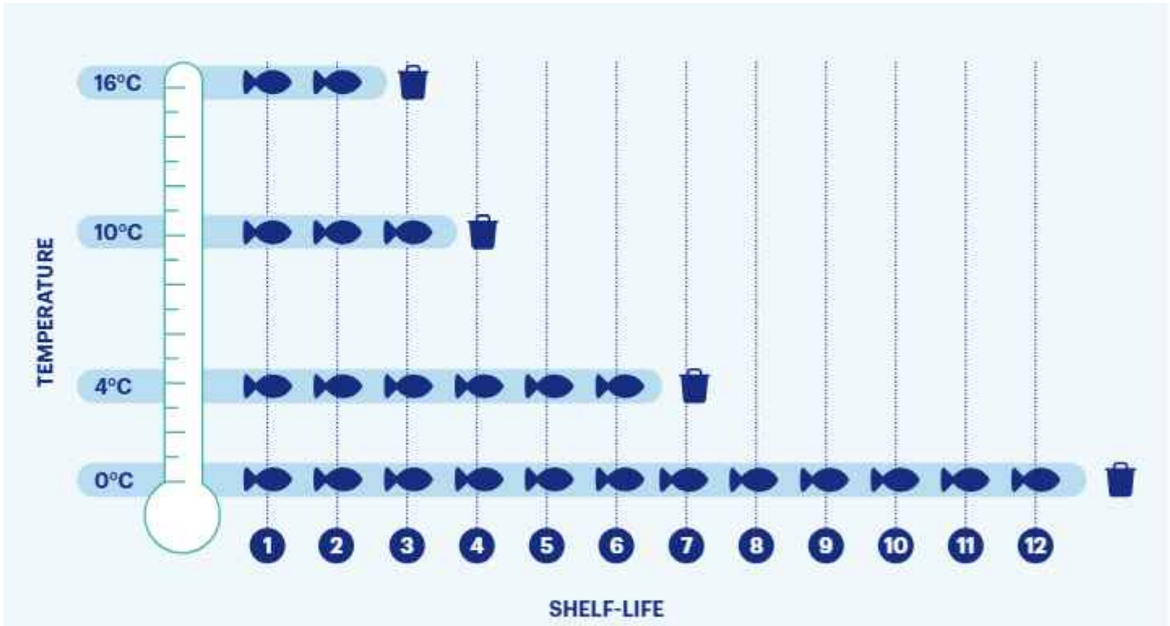
TABLE 1.1 RECOMMENDED STORAGE TEMPERATURE

ACTIVITY	PRODUCT	TEMPERATURE
STORAGE	Fresh or wet seafood	-1˚C to +5˚C
	Frozen seafood	-18˚C or below
FREEZING	Fresh seafood	-18˚C or below, as quickly as possible
TRANSPORTING	Fresh or wet seafood	-1˚C to +5˚C
	Frozen seafood	-18˚C or below

GRAPH 1.1 SPOILAGE RATES VS TEMPERATURE



SECTION 2: HANDLING UNCOOKED CHILLED FISH

IDENTIFYING, SORTING & GRADING YOUR PRODUCT

On a regular basis SFM surveys its registered Buyers and frequently meets with a representative committee for the Buyers to ensure that it clearly understands the needs of those purchasing seafood through SFM/ SFMblue.

Through these information gathering sessions it is clear that of primary importance to Buyers is product that is clearly identified (which includes the correct Australian Fish Name) appropriately sorted and accurately graded. It is also critical to keep seafood as cold as possible at all times before retail sales. Buyers also need to maintain the product temperature. This allows Buyers to purchase product with confidence, in-turn making it vital that Suppliers to SFM/SFMblue also adhere to the following handling guidelines:

- Release or discard species identified as protected, naturally dangerous or prohibited, and dispose of diseased or environmentally spoiled seafood (refer to Appendix I and II for a list of these species).
- Grade and separate seafood according to species and size grade. SFM also has a standard product grading sheet that categorises sizes for all major species (see appendix V).
- Keep seafood cold from the time of capture or harvest. The sooner it is chilled to 0˚C and maintained at this temperature, the better the shelf life and quality **(remember – seafood spoils twice as fast at 4˚C than it does at 0˚C)**.
- Pack and stack seafood effectively.
- Separate shark and ray meat from other lean finfish. When shark deteriorates it smells of ammonia that can contaminate the exposed flesh of other fish.
- Separate damaged seafood from undamaged seafood.
- **Cooked seafood should not be packed with uncooked seafood.**

CONTROLLING TEMPERATURE

Controlling the temperature of seafood is essential to ensure the superior quality of the end product.

From the consumer's point of view, the fresher the seafood is, the better the quality and taste. From the Buyer's point of view, the fresher the seafood, the longer the shelf life. The better the Supplier's reputation in the marketplace as a provider of quality seafood, the greater demand for their product.

As noted earlier, as soon as fish are caught or harvested, they begin to deteriorate due to autolytic enzyme activities within the body and bacteria which are always present on the skin, in the gills and gut. Under the incorrect storage conditions bacteria can multiple quickly, leading to rapid deterioration of fish quality. It is important that fish are chilled to around 0ºC as soon as possible. They must then remain chilled at around 0˚C through all harvest/ catch stages, processing, transportation, storage and wholesales/ retail to slow down spoilage.

The most effective method of chilling fish and reducing the rate of enzymic and bacterial activity is ice slurry[2]. Using ice slurry when the fish are first caught/harvested and correctly packing in ice for transportation increases the likelihood of the seafood reaching the consumer with a longer shelf life and better appearance and taste.

When using ice slurry, Suppliers need to take care to avoid leaching of skin colour, greying of gills and/or clouding of eyes. In order to preserve the skin colour of fish kept in ice slurry, ensure that the salt content of the slurry is maintained at a level similar to the waters that the fish was harvested from. This will also prevent leaching of the gills and clouding of the eyes.

Consumers and Buyers use skin, eye and gill condition to assess fish quality. Therefore, if the skin colour is leached or the fish have cloudy eyes the ultimate price realised for the Supplier will be less, no matter how good the condition of flesh. The appearance of fish affects the presentation value of the seafood, which is very important to Buyers and consumers.

[2] *Ice slurry is a mixture of ice and seawater.*

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PREPARING AN ICE SLURRY

MIGRATORY FISH

For **migratory fish** from cold-water areas like NSW, the ice slurry should be made up of 2 parts ice to 1 part seawater. In warmer areas like Queensland, a mix of 8 parts ice to 2 – 3 parts seawater is required to obtain efficient cooling. In this case extra salt would be required. For example 1,000 litres of ice slurry would require 1.5 – 3.5kg of salt, depending on how much ice has melted in the slurry.

SASHIMI GRADE FISH

For **sashimi grade fish** it is desirable that rigor mortis sets in fast and lasts as long as possible, therefore the fish should be treated by ice slurry immediately after spiking (Ike jime).

DELICATE SKIN SPECIES

For **delicate skin species** such as calamari and squid, 1 part ice to 5 – 10 parts of seawater (closest to natural salinity) gives the best result.

CRUSTACEA

For **crustacea**, the ice slurry should be 3 parts ice to 1 part seawater. When the animal is removed from the slurry there should be no pincer or eye reflex in crabs, meaning they are dead. Rock lobster and crab (such as Spanner Crab and Blue Swimmer Crab) can be stored for up to 18 hours in ice slurry without loss of eating quality. Buyers can use the ice slurry method to humanely kill crustaceans before processing.

HELPFUL TIPS

- **Do not put seafood into fresh water.**
- If possible, control salinity using coarse rock salt. As a general rule, do not allow the temperature to drop below -1˚C because product will start to freeze. Sufficient salt should be added to the slurry to bring the salinity to approximately the same level as the water the fish is taken from. The salinity in the ice slurry tank drops as the ice melts, so coarse rock salt should be added to the ice slurry to dissolve gradually. The salt used should be rough and natural, rather than refined.
- For chilled fish, an ice slurry should be used for the initial cool-down only and stored on ice as close to 0˚C as possible.
- The ice slurry must be stirred periodically so that the temperature and salinity are evenly distributed.
- For the application of sulphites in ice slurry, the total sulphites addition level shall not be greater than 100 mg/kg according to the FAO GSFA.

ADDITIONAL ADVANTAGES

Large fish such as Spanish Mackerel, Mahi Mahi and Yellowtail Kingfish are bled with greater ease in the slurry tank. It also allows the blood, slime and other waste products to be removed from the fish, reducing the chance of bacterial growth. The blood in the slurry water also acts to prevent leaching of colour (similar to salt).

Using a large quantity of ice in the slurry prevents direct contact between fish, particularly large fish, resulting in more efficient chilling and less damage to the fish.

STORING SEAFOOD

Once seafood has been chilled in the ice slurry for about half an hour (this time varies according to size and species), it should be removed from the slurry and packed with enough ice to hold the temperature between -1˚C and 5˚C (ideally as close to 0˚C as possible) for the remainder of the voyage and transportation to destination..

SFM recommends the following steps to maintain the quality of your seafood:

- Chill seafood to 0˚C **before** packing, taking care not to go below -1˚C or higher than 5˚C.
- Cover the bottom of the box with about 6cm of ice. Place uncooked chilled seafood in plastic bags or cover with plastic sheeting before further ice is added to the product. This prevents leaching of skin colour, grey gills and cloudy eyes caused by melted ice water coming into contact with the fish.
- Use small soft flakes of ice when packing to avoid physical damage (e.g. bruising) to the fish. Soft, small ice (like flake ice) tends to pack easier and melt faster, which is where the actual "cooling power" of ice comes from. **Gel packs are not designed to cool like ice** because the melted water

is locked inside the pack. Therefore, if using gel, ensure that the product is chilled to the lower limits of the product specifications given in this guide before packing i.e. 0˚C.

- If fish are gutted, fill the cavity with ice and place belly down in the crate so the cavity drains. When doing this, ensure plastic sheeting is used (rather than plastic bags) and there are holes in the bottom of the container to allow ice water to drain.
- **To reduce the risk of cross contamination never stack uncooked product on top of cooked seafood.**
- Cooked/RTE products must be fully contained in the plastic liners by folding the edges over to prevent contamination from above.
- Iced product should be placed in a cool room where the correct temperature (-1˚C to 5˚C) is kept constant.
- Vessels without mechanical refrigeration should use a well-insulated box with polyurethane foam about 100 – 200mm thick. This is ideal because it provides effective insulation as well as being moisture and rot proof. The box should:
  - be lined with a suitable food grade impervious material and internal corners should be rounded to facilitate cleaning.
  - have provision for drainage and disposal of melt-water.
  - Upper layers of product should be supported to prevent crushing of fish beneath. Similarly, boxed product should be stacked so that the weight of upper boxes is supported by the structure of the boxes below. Boxes should not be overfilled.

CAREFUL & HYGIENIC HANDLING

- Ensure all surfaces aboard the vessel that may come into contact with seafood are regularly cleaned.
- Ice or ice slurry using seawater must be hygienic. Water taken close to shore or from a river should not be used, as pollutants in the water may contaminate the product. Potable water and ice must be used for cooling cooked/ RTE products.
- Food grade plastic liners are recommended but use only once.
- If there is any doubt about the cleanliness of a container, don't use it.
- Keep seafood covered to minimise the chance of contamination and only open product in controlled environment.
- Do not overfill containers.
- Do not hold, handle or throw large finfish by the tail.
- Do not squeeze, squash, throw or step on seafood.
- Avoid folding or squeezing large fish into the crate/ carton.
- Avoid leaving the tail of large fish from over-hanging the edge of the crate/carton.
- Do not use staples to attach labels to containers or fish as they are a food safety risk.

LABELLING

Ensure your fish is labelled correctly. SFM is committed to comply with the Australian Fish Names Standard (AS SSA 5300). The Australian Fish Names website lists the standard names used for each species (www.fishnames.com.au). If you are still unsure of the correct marketing name, please contact SFM on +61 2 9004 1100 during office hours.

Once the fish is correctly sorted and graded, write the correct net weight on the SFM crate label and manifest along with your Supplier name or number, size, grade and process code. The process codes are listed in Appendix III. Incorrect details on the labels, such as wrong identification, creates the potential for erroneous description when being sold, which increases the likelihood of Buyers putting product up for resale. For SFMblue, follow the procedure for product listing.

Short-weight discrepancies occur because product loses moisture in transit, especially shellfish, gilled and gutted product and cooked product. To ensure weight at the time of sale is correct, the actual weight of product should be understated by 2% for chilled seafood and 2-5% for the live seafood subject to the period of time since removal from water. Weight adjustment will be completed if the short in weight (actual weight is less than the stated net weight) is confirmed.

Generally, smaller packs of 10 – 15kg for high value ($8/kg and above) species will achieve better prices than larger packs for the same size and quality product, as smaller packs attract more Buyers.

Do not use staples to attach labels to containers as they are a food safety risk.

For retail-ready packages, allergen labelling is mandatory as per the FSANZ requirements. If the food is not in packaging or does not need to have a label, the information must be displayed with the food or can be requested from the supplier.

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Common allergens to be declared in the seafood include fish and crustacean. Under the Food Standards Code added sulphites must be declared on the label of a packaged food when present in foods in concentrations of 10 mg/kg or more. If the food is unpackaged, the presence of added sulphites must be declared on or in connection with the display of the food, or the buyer can request this information.

SPECIFICATION

Products need to meet a defined specification to determine that they are fit for human consumption and can be described correctly. Following the information described in this section should ensure products can meet these specifications.

Overleaf on Table 2.1 the SFM grading scheme for uncooked chilled fish is outlined. This is the specification SFM uses when assessing product.

TABLE 2.1 CHILLED SEAFOOD (UNCOOKED) PRODUCT SPECIFICATION

ALL CLASSIFICATIONS		
Product Description	Uncooked, chilled seafood that has been pre-weighed pre-packed and iced prior to arrival.	
Composition	Finfish to be cooked before consumption.	
Distribution Conditions	Chilled in Ice at –1˚C to +5˚C	
Temperature of Seafood	Minimum: –1˚C Maximum: +5˚C	
Packaging	In clean plastic fish crates, insulated foam containers, waxed or cardboard cartons, insulated bulk bins. Air freight shipment must be packaged with food grade plastic liners in airline approved boxes.	
Labelling	Seafood must have barcode label specifying supplier name, species, net weight, grade and processing method (where appropriate). Species name to be in accordance with the Australian Fish Names Standard: AS SSA 5300	
Catch Area	Seafood has not been caught in an area notified by the Health Department or NSW Fisheries (or your local fisheries agency) as having a water quality problem likely to result in seafood that is unsafe to eat.	
Prohibited Species – Ciguatera	See schedule – Ciguatera High Risk Areas and Species Size Limits	
– Waxy Esters	The following species are not permitted; *Escolar Lepidocybium flavobrunneum* & *Oilfish Ruvettus pretiosus*	
Heavy Metal Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.1 & Schedule 19.	
Chemical Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.2 & Schedule 19, 20, 21.	
Microbiological Contamination	Standard Plate Count E.coli Listeria monocytogenes Coagulase +ve Staphylococci Salmonella	< 100,000 cfu/g < 10 cfu/g Not Detected in 25g < 100 cfu/g Not detected in 25g
Storage	Store in cool room or on ice at –1˚C to +5˚C	
Customer Preparation	Ready for retail sale or processing. Cook before consumption.	
Sensitive Population	Not suitable for people with seafood allergies.	
Intended Use	Intended for general consumption in accordance with health department recommendations.	

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

SALE CLASSIFICATIONS						
	A+ Grade. (1)	A Grade. (2)	B Grade. (3)	C Grade. (4)	Reject. (5)	Seize (6)
Size	Complies with statutory minimum size limits and graded as per SFM's size grading schedule.					Does not comply with size limits.
Smell	Fresh seafood smell with no repugnant odour			Some unpleasant odours present but not repugnant. (C1)	Slight repugnant odour to the fish in at least one category whether overall, gills, guts, flesh or fillets	Repugnant odour.
Skin Colour/ Scale Condition	Skin/scales are bright. Scales are intact. Skin/scales are undamaged. No evidence of sweating.		Scale damaged. (B1)	Skin/scales are pale/bleached or there is slight evidence of some sweating and/or major skin/scale damage. (C2)		Evidence of heavy sweating and/or extensive skin/scale damage.
			Minor skin damage. Skin may be slightly pale or bleached due to ice slurry treatment. (B2)			
Gills	Bright red coloured gills.		Pale red/pink coloured gills. Possibility of slight gill odour but not repugnant. (B3)	Dull coloured gills and some unpleasant gill odour but not repugnant. (C3)		Dull coloured gills and repugnant odour of gills and flesh.
Guts	Firm to the touch.		Bit soft to the touch. (B4)	Soft to the touch. (C4)		Soft to the touch and repugnant odour.
Flesh	Live or pre-rigor mortis.	Peak rigor mortis (i.e. Firm).	Early post-rigor mortis (i.e. Slightly soft). (B5)	Late post-rigor mortis (i.e. Soft to the touch). (C5)		Soft to the touch and repugnant odour.
Diseases and Parasites	No evidence of disease or parasites.					Evidence of disease or parasites.
Contamination	No evidence of contamination e.g. diesel, petrol, mud.					Evidence of contamination.

Note:

1. A+ Grade product is premium quality.
2. A Grade product falls just short of premium quality, this is good quality product.
3. B Grade is acceptable quality product with slight to moderate imperfections.
4. C Grade has a greater level of imperfections which detract from customer satisfaction. The seafood is still marketable and does not present a food safety risk.
5. Not of merchantable quality. This product will not be sold.
6. Not fit for consumption. This product will be seized.

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

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SECTION 3: GUIDELINES FOR SASHIMI FISH

Sashimi fish is determined by its level of freshness. Early stage freshness deterioration is defined by the stage of rigor mortis. Fish prior to or in stiff rigor mortis are considered sashimi quality.

HANDLING PROCEDURES

The following two processes can slow down enzymic activities, which will maintain freshness and extend the duration of rigor mortis, resulting in longer shelf life and better quality product.

SPIKE THE HINDBRAIN (IKE JIME)

Spiking the hindbrain (a process also known as Ike Jime) is used to destroy the medulla oblongata (lower half of the brain stem) and the spinal cord to slow down the enzymic activities, because most of the enzymes involved with the physiological functions are controlled by the nervous system. This process also prevents fish from struggling and ensures that much of the original energy within the muscle (stored as glycogen) is retained and the body temperature is kept lower. This maintains glycogen levels and fish therefore, stay in rigor for longer, slowing the rate of deterioration.

BLEED THE PRODUCT

Another method of removing heat and waste matter from the product is to bleed it. If blood is not removed from the fish, or the degree of oxygen deprivation is extreme, the build-up of wastes can lead to highly acidic blood which can cause the flesh to turn soft, pale and bitter to taste. This condition in Tuna is known as "burnt" flesh, pale soft exudative syndrome (PSE) or Yaki Niku. Bleeding should be carried out immediately upon capture or harvest.

To bleed: Cut any artery on the gills or caudal section (base of the tail). For Tuna, cut both sides of the subcutaneous blood vessel (located near the pectoral fin). There should be no blood left visible in the flesh. Cutting the arteries after spiking allows the heart to act as a pump and drive the blood from the body.

SASHIMI GRADE TUNA

In the case of sashimi grade Tuna, the colour of the flesh is as important as its freshness. All finfish have two types of muscle: white muscle similar to human muscle, and dark muscle specific to finfish. When the fish is filleted and skinned, the dark muscle is easily recognised, running beside the lateral line, usually just under the skin. The large portion of dark muscle running through the already slightly red-coloured meat is clearly visible.

When Tuna are sold, they should be in the dull red (deoxymyoglobin) colour stage so that the bright red (oxymyoglobin) coloured flesh will result when the Tuna is later served to the consumer. Over-oxidised "brown" coloured flesh is not considered sashimi grade product.

SFM'S TUNA SASHIMI GRADING SCHEME

For the majority of Buyers at SFM's auction, colour is the most important grading attribute when purchasing sashimi grade Tuna. In addition to colour, for top-grade fish, shape is a key attribute because the amount of sashimi grade meat that the Buyer estimates will be recovered from the whole fish will be greater. Therefore, colour and to a lesser degree shape are the key determining factors when grading Tuna under SFM's Sashimi Grading Scheme.

GRADES

The revised Sashimi Grade Scheme (page 12) provides for six possible grades of sashimi Tuna. These are:

Sashimi A+
Sashimi A
Sashimi B+
Sashimi B
Sashimi B – (pale)
Sashimi B – (cloudy)

OTHER CONTRIBUTING FACTORS

Fat, Oil Content, Freshness & Meat Damage

Fat, oil content, freshness and meat damage are also important factors influencing price, these attributes will be assessed separate to grading and the results verbally announced to Buyers by SFM auctioneers and displayed on the auction clock as part of the selling process.

For all tuna traded through SFMblue, suppliers to grade according to SFM's Tuna Sashimi Grading Scheme.

PROCESS OF ASSESSMENT BY QUALITY ASSURANCE TEAM

The Quality Assurance team assesses tuna prior to the commencement of the auction each morning on the grading factors 1 & 2, whereas grading factor 3, 4 & 5 is to be graded by the suppliers.

For SFMblue, it is vital that suppliers graded accurately for all the factors stated below.

Grading Factors 1 & 2 Assess whether any Tuna needs to be seized due to a) contamination; and b) disease or parasites;

Grading Factor 3 Assess fat, oil, freshness and meat damage attributes;

Grading Factors 4 & 5 Assess colour and shape to determine a Tuna's overall rating.

WEIGHT

Tuna usually have to be greater than approximately 20kg to develop the colour required to be considered sashimi quality. However some smaller Tuna do present good colour, therefore, weight will not be used as a determining factor for sashimi grading. Tuna will be graded in terms of flesh colour regardless of its size.

PRODUCT LABELLING

All product sold from SFM's Sashimi Area or SFMblue will have a waterproof card attached containing all the relevant data required for sale:

- Sequence number (barcode)
- Supplier
- Weight
- Species
- Process
- Country of origin
- Grade (if it is a sashimi species)

WHICH FISH ARE SASHIMI SPECIES IN SFM?

- Yellowfin Tuna
- Southern Bluefin Tuna
- Bigeye Tuna

WHAT IS GRADE C?

C grade is deemed non-sashimi grade and is only safe to be consumed after cooking.

OTHER SPECIES DISPLAYED IN THE SASHIMI AREA

Albacore, Mahi Mahi, Swordfish, Striped Marlin, Opah and other large pelagic by-catch species are also sold in this area. However, comments (as listed under Section 3 of the Grading Scheme Table – Merits & Demerits) regarding the species fat, oil content, freshness and meat damage may still be used to describe these species.

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TABLE 3.1 SASHIMI TUNA PRODUCT SPECIFICATION

ALL CLASSIFICATIONS		
Product Description	Sashimi grade Tuna.	
Composition	Tuna species – Yellowfin Tuna, Bigeye, Southern Bluefin.	
Distribution Conditions	Chilled in ice at -1°C to +5°C	
Temperature of Seafood	Minimum: –1°C Maximum: +5°C	
Packaging	In clean bulk bins, tuna coffins or appropriate food grade packaging.	
Labelling	Seafood must have barcode label specifying supplier name, species, net weight and grade. Species names to be in accordance with the Australian Fish Names Standard AS SSA 5300.	
Catch or Harvest Area	Seafood has not been caught or harvested in an area notified by the Health Department or NSW Fisheries (or the local fisheries agency) as having a water quality problem likely to result in seafood that is unsafe to eat.	
Heavy Metal Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.1 & Schedule 19.	
Chemical Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.2 & Schedule 19, 20, 21.	
Microbiological Contamination	Standard Plate Count E.coli Listeria monocytogenes Coagulase +ve Staphylococci Salmonella	< 100,000 cfu/g < 10 cfu/g Not Detected in 25g < 100 cfu/g Not detected in 25g
Storage	Store in cool room or on ice at –1°C to +5°C	
Customer Preparation	Ready for retail sale or processing.	
Sensitive Population	Not suitable for people with seafood allergies.	
Intended Use	Intended for general consumption in accordance with health department recommendations.	

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TABLE 3.2 SASHIMI TUNA GRADING SCHEME

GRADING FACTORS	SASHIMI GRADE	NON SASHIMI GRADE	SEIZE & REJECT
1. Contamination	No evidence of contamination e.g. diesel, petrol, mud	Evidence of contamination e.g. diesel, petrol, mud: seize & reject	
2. Disease & Parasites	No evidence of disease or parasites	Evidence of parasites or diseased fish resulting in meat being unfit for human consumption: seize & reject	
3. Freshness Fat Oil Flesh Damage Meat	**MERITS** **Good Freshness (+FRH)** displaying the following characteristics; • bright, glossy skin colours • very firm carcass (flesh springs back quickly, tail section can be seen lifting off the table) • scales intact • clean stomach and gill cavity with fresh sea smell **Significant amounts of fat (FAT)** **Significant oil content (OIL)** **Good meat clarity, translucent (+CLARITY)** **STANDARD CHARACTERISTICS** **Average Freshness** displaying the following characteristics; • body colours a little faded • firm carcass (flesh springs back quite fast) • some scales lost • no odour in stomach and gill cavity • no flesh damage **No or insignificant amounts of fat or oil** **Average Clarity** **DEMERITS** **Less than Average Freshness (–FRH)** displaying the following characteristics; • faded body colours • slightly soft carcass (flesh springs back slowly) • small patches of scales lost • some slight odour in stomach and gill cavity **Cookie cutter shark bites (CCSH)** **Shark bite damage (SHDAM)** **Skin damage (SD)** **Minor flesh damage (FLDAM)** **Meat colour a bit dark (BD)**	• Evidence of blood and body fluids in stomach and gill cavity resulting in unpleasant odour • Large soft areas on carcass surface • Significant amount of flesh damage affecting meat yield and quality Fish that meet one or more of the above criteria will be graded as non sashimi grade. Fish will also be graded as non sashimi if it meets either of the colour assessments below.	• High presence of body fluids in stomach and gill cavity resulting in repugnant odour **OR** • Prevalent meat damage making meat unfit for human consumption **OR** • Very soft meat Fish that meet one or more of the above criteria will be classified as seize & reject. Fish will also be seized if it meets the colour assessment below.

4. Colour	Excellent species specific colour	Excellent species specific colour	Good species specific colour	Average species specific colour	Pale/ pink/ white colour	Cloudy pink/red colour	Dark meat	Burnt meat: brown colour	Dark brown burnt colour
5. Shape	Well rounded	Normal shaped	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6. Final Grade	Sashimi A+	Sashimi A	Sashimi B+	Sashimi B	Sashimi B– (pale)	Sashimi B– (cloudy)	C Grade (DM)	C Grade (brown)	Seize and reject

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

GRADING – YELLOWFIN TUNA

A+/A
Excellent species specific colour

B+
Good species specific colour

B
Average species specific colour

B– (pale)
Pale pink/white colour

B– (cloudy)
Cloudy pink/red colour

C (DM)
Dark meat

C (brown)
Burnt meat: brown colour

GRADING – BIGEYE TUNA

A+/A
Excellent species specific colour

B+
Good species specific colour

B
Average species specific colour

B– (pale)
Pale pink/white colour

B– (cloudy)
Cloudy pink/red colour

SECTION 4: FROZEN SEAFOOD

FREEZING PROCESS

Once most of the water inside the product's flesh is frozen to around -25˚C, bacterial action becomes dormant and most enzymic activity ceases. When this occurs, protein denaturation, oxidation of fats and colour changes in the flesh are reduced.

Finfish should be frozen to below -7˚C in less than two hours, be packaged well and stored at a temperature of -18˚C or below with an ideal temperature of -25˚C or below for longterm storage.

If product is frozen slowly, larger pure ice crystals form and damage the flesh. As a result, salts and other compounds such as enzymes in the rest of the unfrozen water become more concentrated and require further lowering of the temperature before freezing completely. When freezing is rapid and product is kept at a very low temperature, water from the flesh starts to freeze together with salts and other compounds inside the cell walls.

The difference between the vapour pressure of small and large ice crystals also forces large crystals to absorb smaller ones, thus, forming even larger crystals during storage. This causes excessive moisture loss when the flesh is thawed and results in tasteless flesh when the fish is cooked.

When fish are frozen the outer layer of flesh starts to freeze first, then it spreads deeper into the body. However, the ice crystals formed in the outer flesh are very good insulators and the speed of freezing inside the flesh tends to slow down, forming larger ice crystals which damage the quality of the flesh. For this reason, Individually Quick Frozen (IQF) products are preferable and are also more convenient for consumers.

THE RATE OF FREEZING IS AFFECTED BY:

- The type of freezer and its performance
- Size and shape of the product
- Initial product temperature
- Type of packaging material used

TEMPERATURE & RATE OF FREEZING

Quick freezing is vital to maintaining the quality and freshness of fish as the quality suffers badly from the effects of slow freezing.

Quick freezing is a rate of freezing where no part of a fish or block of fillets takes more than two hours to cool from 0˚C to -7˚C. The fish is retained in the quick freezer until the temperature of the warmest part of the fish (e.g. the centre of a block of fillets) is reduced to -18˚C or below.

Temperature fluctuations during the freezing process also affect the quality of the product, and result in:

- Changes to the appearance of the product
- Reduced shelf-life
- Increase in enzyme activity within the product
- Formation of ice crystals in the flesh of the product

TIPS FOR FREEZING & STORING FILLETS

- Do not try to freeze and store fillets in the same chamber. An acceptable product can be produced only if separate chambers are reserved for freezing and storing.
- The quick freeze chamber must have the capacity to freeze the product from a temperature of 0˚C to -7˚C in a period of not more than two hours.
- Never load the freezer beyond its efficiency capacity.
- Avoid leaving cold chamber doors and hatches open.
- Before releasing blocks from freezer trays, always ensure that the centre of the block is properly frozen to -25˚C. A stab thermometer should be on hand for this test.
- Storage chamber temperatures should be consistently maintained at around -18˚C for periods of up to 90 days and even lower if longer storage periods are contemplated.
- Refrigeration equipment must be designed with ample reserve capacity so that above-average catches can be treated without risk to product being quick frozen and stored.
- To prevent "freezer burn" it is recommended that blocks of fillets are glazed by immersion in chilled water after quick freezing.
- Frozen product can be stored at -30˚C with minimal changes in quality for 12 months.
- Product stored at -60˚C can be kept up to 4 years. At -18˚C product can be kept for up to 6 months without noticeable quality changes.

Note: It is difficult to prevent dehydration of flesh during prolonged freezer storage without a stable, low temperature facility. Changes of storage temperature should be minimised and fluctuations of more than 2˚C should be avoided. Packaging can also help prevent dehydration.

CAUSES OF DETERIORATION IN QUALITY

During storage the edible quality of frozen fish often deteriorates due to:

DENATURATION OF PROTEIN

Finfish affected by denaturation have difficulty in holding water but can look and smell as if not affected by spoilage. The flesh releases water very readily and will gape badly when gentle pressure is applied.

OXIDATION OF FAT

Once fat has oxidised it continuously combines with other compounds such as denatured protein, resulting in an irreversible change to flesh quality, giving it a fish oil taste and yellowish colour.

FREEZER BURN

It is important that product is stacked properly in the freezer store so that there is always space for cold air to circulate along the walls and floor. A distance of 5–10cm from walls and floor is adequate, but occasionally larger gaps may be required. Pallet storage should provide air spaces beneath and around the outside of the stacked product and the temperature of frozen product in the storage area should be checked periodically.

Rules for measuring fish temperature are:

- Always measure the most significant temperature i.e. check those fish that are slowest to cool, quickest to warm or are at the highest temperature.
- The thermometer should penetrate the fish as deeply as possible to avoid errors due to conduction of heat.
- Measure the temperature quickly with little or no handling of the fish.
- Use an instrument that responds quickly to temperature changes and is accurate to within ± 1°C of the true temperature.
- Use an instrument with a small temperaturesensitive element.
- Periodically check and recalibrate all temperature measuring instruments.

PACKAGING & LABELLING

The packaging of frozen product is extremely important in maintaining quality. Standardised products that are processed in the same manner and packed in the same weight should be sealed in an impermeable plastic bag or with substantial ice glaze to avoid dehydration of the product inside a waxed carton.

In the case of non-standardised products, fish should be thoroughly ice glazed for the same reason. Dehydration often causes "freezer burn" which can also be prevented by this form of packaging.

Frozen product should be labelled to include:

- Packer's/Producer's name
- Address
- Contact telephone number and/or fax
- Product description that includes species (list the correct Australian Fish Name), size, process method, net fish weight not including any glaze applied
- Packing date and defined use-by date at the storage temperature outlined
- Storage temperature
- Freezing method (air-blast freezing, plate or contact freezing, or spray or immersion freezing)

QUALITY ASSESSMENT

It is difficult to assess the quality of frozen fish by visual means only. The colour of the flesh is translucent to clear white at first, but as decomposition progresses it becomes cloudy white, then yellowish and finally changes to a brown colour. At the same time the odour of the product changes from a pleasant sea smell, to acidic, then to a cod liver oil smell. The physical characteristics of the product also change from clear moist flesh, to gradually dehydrated dried flesh. Product showing extensive denaturing of protein, oxidation of fat and/or freezer burn will be rejected for sale.

It is important to note that while freezing seafood stops the growth of some bacteria, several species of bacteria that cause decomposition can survive the freezing process and will affect seafood quality after it is thawed.

SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

TABLE 4.1 FROZEN SEAFOOD PRODUCT SPECIFICATION

ALL CLASSIFICATIONS	
Product Description	Frozen seafood – wild harvest and farmed
Composition	Whole fish, fillets, cooked or raw crustacea and molluscs
Distribution Conditions	Transport below -18˚C
Temperature of Seafood	Min -18˚C
Catch Area	Area classified as open by the statutory food authority
Packaging	In clean and undamaged food grade plastic bag or vacuum pack, packed inside a clean and undamaged cardboard or insulated container.
Labelling	Product packed in retail format must be labelled consistent with the FSANZ Food Standards Code Requirements, (in particular Standards 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.8, 1.2.9, 1.2.10 and 1.2.11). Also, sections 52 and 53 of the Trade Practices Act and the Trade Measurement (Pre-Packed Articles) Regulations. Outer Cartons are to be labelled on the end of the box with an SFM barcode and information regarding the suppler name and SFM account number, product contents, country of origin, packer details, pack date, use by date, storage and thawing instructions and net weight. Species names to be in accordance with the Australian Fish Names List.
Heavy Metal Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.1 & Schedule 19.
Chemical Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.2 & Schedule 19, 20, 21.
Microbiological Contamination	Refer to the product specification for specific product type (Fish, cooked or raw crustacea, bivalve molluscs).
Storage	Stored below -18˚C
Customer Preparation	Thawing for cooked frozen seafood. Cooking after thawing for any frozen raw seafood.
Intended Use	Ready for retail sale or processing. Intended for general consumption in accordance with health department recommendations.
Sensitive Population	Not suitable for people with seafood allergies.

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

TABLE 4.2 SALE CLASSIFICATIONS - FROZEN SEAFOOD

	ACCEPTABLE	SEIZE AND REJECT
Size	Complies with statutory minimum size limits and graded as per SFM size grading schedule	Does not comply with statutory minimum size limits
Flesh Condition	No evidence of freezer burn	Evidence of freezer burn
Presentation	No evidence of having been thawed and re-frozen	Evidence of having been thawed and re-frozen
Diseases & Parasites	No evidence of disease and parasites, which spoil flesh quality	Evidence of disease and parasites, which spoil flesh quality
Contamination	No evidence of contamination e.g. diesel, petrol, mud	Evidence of contamination e.g. diesel, petrol, mud
Packaging	Sealed properly and intact, no physical damage	Improper seal observed, physical damage on the packaging

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SECTION 5: GUIDELINES FOR LIVE AND COOKED SEAFOOD

SEAFOOD COMMONLY SOLD LIVE

- Mud Crab
- Rock Lobster
- Spanner Crab
- Redclaw
- Urchin

Dead crustacea from Estuarine or freshwater habitats (e.g., Mud Crab, Yabbies) will be prohibited from sale in SFM. This is because when these species die, the quality of their flesh deteriorates rapidly because there is no cooling to prevent enzymatic and bacterial activity. Therefore, because it is difficult to assess the quality of these dead products intended for live sale, the sale of such product is prohibited.

ACCEPTABLE PACKAGING FOR LIVE SEAFOOD

Sydney Fish Market requires all suppliers of live mud crab to use insulated boxes to minimise temperature fluctuations during transport.

Mud crabs are highly susceptible to temperature and humidity changes, therefore, to ensure that this product is in the best state possible, SFM requires insulated packaging be used.

SFM will not be held responsible for providing any feedback or explanations to suppliers on mortality losses if the supplier chooses not to comply.

NSW suppliers within 2 hours drive of SFM may continue to utilise uninsulated fish crates, but it is the supplier's responsibility to ensure that the transport temperature and humidity is optimal for live mud crabs.

CONDITIONING LIVE SEAFOOD

Suppliers of live crustacea to SFM's auction should follow these guidelines:

- Purge crustacea prior to travel.
- Slow metabolism by reducing temperature, depending on where the product has been caught.
- Do not allow containers to move around during transport.
- Reduce exposure to bright light, breeze and noise as this raises crustaceas' metabolic rate.
- Keep humidity as high as possible (approximately 70% is high enough to keep most crustacea and shellfish alive).
- In the case of Mud Crab, the best temperature conditions are between 18˚C to 25˚C at at 100% humidity or depending on the supply location. Avoid large, sudden changes in temperature (10°C either way). At 20˚C, if the humidity decreases in their environment to 95%, 85% or 75%, then the length of their survival decreases to 6 days, 3 days or 2 days respectively. Additional information regarding storage of live Mud Crab can be found in FRDC report.[3]
- Mud Crab should be packed with eyes up and Spanner Crab packed with eyes down.
- Maintain the temperature of live Rock Lobster between 4˚C and 20˚C to minimise stress (subject to the supply location). If their transportation and sale will take more than 8 hours, Rock Lobster should be purged and conditioned within the temperature requirements.

[3] 2003/204 "Maximising revenue with NT Mud Crab fishery by enhancing post harvest survival mud crabs", by Sue Poole and John Mayze. Published in 2009. This report outlines methods for the optimum storage of Mud Crab post harvesting and for rejuvenating slow Mud Crab post distribution.

SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

TABLE 5.1 LIVE ROCK LOBSTER & REDCLAW PRODUCT SPECIFICATION

	ACCEPTABLE 1	ACCEPTABLE 2	SEIZE & REJECT
Size	Complies with statutory minimum size limits and graded as per SFM size grading schedule. **NSW Eastern Rock Lobster must be tagged.**	Complies with statutory minimum size limits and graded as per SFM size grading schedule. **NSW Eastern Rock Lobster must be tagged.**	Does not comply with statutory minimum size limits. **NSW Eastern Rock Lobster not tagged, (NSW Fisheries to be notified).**
Condition	Lively	Slow, near death	Dead
Roe	Female without external roe	Female without external roe	Female with external roe
Moulting Stage	Pre-moulting, carapace full of flesh	Rock Lobster: Just moulted light weight	
Carapce	Undamaged	Minor damage	Significant damage
Diseases & Parasites	All legs intact	Legs missing	
Contamination	No evidence of disease and parasites which spoil flesh quality	No evidence of disease and parasites which spoil flesh quality	Evidence of disease and parasites which spoil flesh quality
Flesh Condition	No evidence of contamination e.g. diesel, petrol or mud	No evidence of contamination e.g. diesel, petrol or mud	No evidence of contamination e.g. diesel, petrol or mud

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

TABLE 5.2 LIVE SPANNER CRAB PRODUCT SPECIFICATION

	ACCEPTABLE 1	SEIZE & REJECT
Size	Complies with statutory minimum size limits and graded as per SFM size grading schedule.	Does not comply with statutory minimum size limits.
Condition	Lively or very slow (taken to be when the tail section will not stay curled up)	*Dead
Roe	Female without external roe	Female with external roe
Carapce	Undamaged	*Damaged
Nippers	Two intact nippers	*Missing any nippers
Legs	All legs intact	*Legs missing
Diseases & Parasites	No evidence of disease or parasites	Evidence of disease of parasites
Contamination	No evidence of contamination e.g. diesel, petrol, mud	Evidence of contamination e.g. diesel, petrol, mud

*Rejected product is checked according to chilled crustacea guidelines and iced up. If it passes the QA assessment, it can be sold as "Green" Product.

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SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

TABLE 5.3 LIVE MUD CRAB PRODUCT SPECIFICATION

'A' GRADE MUD CRAB

Male

Shell does not indent when pressed firmly on any segment

Female

Carapace does not indent when pressed firmly on left hand or top right corner

'B' GRADE MUD CRAB

Male

Shell indents when pressed firmly on any segment

Female

Carapace indents with no clicking noise when pressed firmly on left hand or top right corner

'C' GRADE MUD CRAB

Male; Top flexes
Female; Top clicks

MUD CRAB THAT DON'T MEET THE GRADE

Any 'A' or 'B' grade Mud Crab that possess the following criteria **must be kept by the Buyer but will have their original value reduced by 20%** unless the box is defined by the Supplier as having these criteria prior to sale.

One claw missing
Only affected crab(s) will be downgraded.

DEAD OR "COMMERCIALLY UNSUITABLE" MUD CRAB WILL BE CONDEMNED (DISPOSED OF)

Dead

Badly deformed, due to disease/cancer or parasite infestation

Badly damaged or bleeding

Froth from the mouth (black or brown froth)

If insect larvae are present reject the crab.

Chemically contaminated (i.e., fuel)

- Suppliers are encouraged to place Mud Crabs that have just moulted back in water as they will harden up and become a A grade mud crab.Wherever possible, and provided the Mud Crab meets minimum sales classifications under the guideline, SFM will attempt to achieve a sale for all Mud Crab consigned to the auction.
- Dead chilled Mud Crab will not be accepted.
- This grading chart is a visual representation of the National Grading Scheme developed by the National Mud Crab Reference Group with FRDC funding. www.c-aid.com.au/wp-content/uploads/Guide-to-Using-the-Australian-Industry-Live-Mud-Crab-Grading-Scheme.pdf
- Excessive scarring and worn claw teeth indicates that the crab has not moulted recently and could potentially have little meat content. SFM recommends not consigning these crabs as when they are mixed in a box of A grade mud crabs, as they devalue the whole box of crabs.
- Crabs sometimes lose legs or flippers. If more than a total of 3 legs or flippers are missing, the packaging should be labelled as 'MISSING LEGS'.

COOKED CRUSTACEA

Supplier must hold the required licence from the relevant state or jurisdiction to supply cooked crustacea.

ENSURING QUALITY

To ensure the quality of crustacea follow the simple guidelines below:

- All crustacea must be cooked thoroughly and minimise the risk of post-cooking contamination. Undercook must be avoided as it will impact the safety and quality of the cooked products.
- Cooked crustacea must be segregated from other seafood to avoid cross-contamination.
- Ice, slurry and chilling water must be hygienic.
- Containers must be clean and lined with food grade plastic liner.
- Suppliers must not use prohibited substances such as MSG or colouring agents.
- Supplier must carefully monitor the use of limited substances such as sulphur dioxide, sodium sulphites and potassium sulphites.

Primary enzymic spoilage of crustacea is rapid even though the breakdown of flesh by bacteria is slow.

The Hepatopancreas (an organ inside the carapace) of crustacea contains a strong protein digestive enzyme "protease", which is very fragile and easily damaged by fishing methods such as trawling, rough handling or during transportation. Once this organ has been broken or damaged, the enzyme quickly seeps out and digests the meat surrounding the Hepatopancreas. If the damage is severe, the enzyme will quickly go through the entire muscle. This will result in the condition known as "droptail" in Rock Lobster, "head-off" in Prawn, "black patches" in Blue Swimmer Crab and produces "mushy meat" in any other crustacea.

Blackening of the head, abdominal part of the shell, swimming legs and tails of Prawn, Rock Lobster and Crab, is known as "blackspot" or "black-head" and results from the activity of another enzyme throughout the body and shell. "Black-spot" is caused by tyrosinase leaking out from the broken Hepatopancreas. To slow down the activities of this protease, all crustacea should be cooled by ice or ice slurry as soon as possible after harvesting. Even when prawns have been cooled quickly, protease released from a ruptured Hepatopancreas will still create "brown-head" in the cooked product. For this reason, cooled product should not be stored for more than two days before cooking. Normal cooking destroys this enzyme and stops the autolysis. Antioxidants such as ascorbic acid, citric acid, 4-hexylresorcinol and sodium metabisulphite may be used to control "black-spot" provided the total added sulphites will not exceed 100 mg/kg. Crustacea affected by "black-spot" are quite safe to eat provided the condition has not arisen from bacterial spoilage.

A garlic-like odour in bugs or a "rotten onion" odour in prawns indicates that volatile base compounds such as Dimethyl Sulphide or TMA are being produced by bacterial activity as a result of poor handling.

COOKING CRUSTACEA

Crustacea may be steamed or boiled in seawater, or in a solution with a concentration of 35 ppt (350 grams of salt to every 10 litres of fresh water). Cooking time varies depending on the cooking processes, volume being cooked, size and initial temperature of product. These factors should be assessed when validating your HACCP plan, as required under Food Standards Code (standard 3.2.1).

PACKING COOKED CRABS

When Mud Crab or Blue Swimmer Crab has been cooked and cooled and are ready for chilling or transport, they must be packed correctly.

They can either be packed eyes down (this is the direct opposite of the recommendation for live crabs) or they can be stacked flat on their backs with bellies facing up. If cooked crabs are packed eyes up, melting ice water or condensation from cool rooms enters the crab's stomach from the eye and mouth area. Within a few days the crab's gut begins to stink and the crab is no longer fit for sale and consumption.

SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

TABLE 5.4 COOKED CRUSTACEA PRODUCT SPECIFICATION

ALL CLASSIFICATIONS		
Product Description	Cooked crustaceans	
Composition	Prawn, Lobster, Bug, Swimmer Crab	
Distribution Conditions	In ice at -1˚C to +5˚C	
Temperature of Seafood	Minimum -1˚C. Maximum +5˚C	
Packaging	Cooked crustacea placed in food grade plastic liner, packed in either clean plastic fish crates, insulated foam containers or other appropriate food grade packaging.	
Labelling	Seafood must have barcode label specifying supplier name, species, net weight, quality grade and size grade. Species names to be in accordance with the Australian Fish Names Standard: AS SSA 5300	
Catch of Harvest Area	Seafood has not been caught or harvested in an area notified by the Health Department or NSW Fisheries (or relevant local Fisheries Agency) as having a water quality problem likely to result in seafood that is unsafe to eat.	
Heavy Metal Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.1 & Schedule 19.	
Chemical Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.2 & Schedule 19, 20, 21.	
Microbiological Contamination	Standard Plate Count E.coli Listeria monocytogenes Coagulase +ve Staphylococci Salmonella	<100,000 cfu/g <10 cfu/g Not Detected in 25g <100 cfu/g Not detected in 25g
Storage	Stored in cool room or on ice at -1˚C to +5˚C	
Customer Preparation	Ready for retail sale or processing.	
Intended Use	Intended for general consumption in accordance with health department recommendations.	
Sensitive Population	Not suitable for people allergic to crustaceans.	

SALE CLASSIFICATIONS	A GRADE	B GRADE	C GRADE	SEIZE OR REJECT
Size	Complies with statutory minimum size limits and graded as per SFM Size Grading Schedule. NSW Eastern Rock Lobster must be tagged.			Does not comply with statutory minimum size limits. NSW Eastern Rock Lobster not tagged (notify NSW Fisheries).
Smell	Fresh seafood smell with no repugnant odours.		Some unpleasant odours present but not repugnant.	Repugnant odour.
Roe	Female without external roe.			Female with external roe.
Legs (swimmer crabs/lobsters)	Up to 2 legs missing.	3 or more legs missing.	All legs missing.	
Diseases and Parasites	No evidence of disease or parasites.			Evidence of disease or parasites.
Contamination	No evidence of contamination e.g. diesel, petrol, mud.			Evidence of contamination e.g. diesel, petrol, mud

NOTE: 1. B Grade product will have slight to moderate imperfections, which detract from visual appearance of the seafood but do not detract from the quality of the flesh.

2. C Grade product will have a greater level of imperfections, which detract from customer satisfaction. However the seafood is still marketable and does not present a food safety risk.

	A GRADE	B GRADE	C GRADE	SEIZE & REJECT
Lobster	No evidence of drop tail (If evident, indicates lobster is undercooked). AND No evidence of soft carapace. AND No shell damage. AND No evidence of spongy meat in tail section (If evident, indicates lobster is undercooked) AND Both antennae are intact.	Some evidence of drop tail indicating lobster is undercooked. AND/OR Carapace is slightly soft indicating lobster is in later stage of moulting cycle. AND/OR Minimal shell damage. AND/OR Meat in tail section is slightly spongy indicating lobster isundercooked. AND/OR One antennae is broken off the lobster.	Significant evidence of drop tail. AND/OR Soft carapace. AND/OR Some shell damage. AND/OR Spongy meat in tail section. AND/OR Some evidence of blackening of the head or carapace indicating lobster is slightly undercooked. AND/OR Both antennae are broken off the lobster and multiple legs are missing.	Tail has come loose from carapace. If the meat in the tail has a translucent rubbery appearance the lobster is too undercooked and will be unfit for consumption. OR Very light weight and soft carapace indicating little or no meat. OR Significant shell damage making it unfit for human consumption due to possible meat contamination. OR Significant evidence of blackening of the head or carapace indicating lobster is very undercooked and not fit for consumption.

N.B. C Grade Lobsters may be resold after QA Inspection.

	A GRADE	B GRADE	C GRADE	SEIZE & REJECT
Prawn	Little or no evidence (less than 10%) of thin shells, soft shells (due to moulting) or loose heads. AND Little or no evidence (less than 10%) of dark brown and/or black heads (due to enzyme reactions). AND Little or no evidence (less than 10%) of black underbellies/ legs indicating crustacea are undercooked. AND Little or no evidence (less than 10%) of gritty texture on shell as a result of bacteria build up.	10 – 50% have thin shells indicating the later stage of the moulting cycle. AND/OR 10 – 50% have dark brown and/or black heads and/or loose heads. AND/OR 10 – 50% have black underbellies/legs indicating crustacea are undercooked. AND/OR 10 – 50% have gritty texture on shell.	More than 50% have soft shells indicating the prawns have recently moulted. AND/OR More than 50% have dark brown and/or black heads and/or loose heads. AND/OR More than 50% have black underbellies/legs indicating crustacea are undercooked. AND/OR More than 50% have gritty texture on shell.	Large quantity of black heads/loose heads and/or black underbellies and or thin/soft shells.

	A GRADE	B GRADE	C GRADE	SEIZE & REJECT
Bug	Little or no evidence (less than 10%) of blackening of the underbelly and/or head indicating bug is undercooked. AND Little or no evidence (less than 10%)of soft spongy meat in tail section. AND Little or no evidence (less than 10%) of soft head and carapace.	10 – 50% have slight blackening of the underbelly/head indicating bug is slightly undercooked. AND/OR 10 – 50% have evidence of soft spongy meat in tail section. AND/OR 10 – 50% have evidence of soft heads and carapace.	More than 50% have some amount of blackening of the underbelly/head indicating bug is undercooked. AND/OR More than 50% have soft spongy meat in tail section. AND/OR More than 50% have soft heads and carapace.	Very light weight and soft carapace indicating little or no meat. OR Significant evidence of blackening of the head or carapace indicating bug is very undercooked and not fit for consumption. OR Tail has come loose from the head. If the meat in the tail has a translucent rubbery appearance the bug is too undercooked and will be unfit for consumption.
Blue Swimmer Crab and other swimming crab	Little or no evidence of discolored underbelly (less than 10%). AND Little or no evidence of soft carapace on the underbelly section (less than 10%). AND Little or no evidence of carapace damage (less than 10%). AND Little or no evidence of missing nippers (less than 10%).	10 – 50% have slightly discoloured underbelly. AND/OR 10 – 50% have slightly soft carapace on the underbelly section. AND/OR 10 – 50% have some carapace damage. AND/OR 10 – 50% have 1 nipper missing.	More than 50% have discoloured underbelly. AND/OR More than 50% have soft carapaces on the underbelly section. AND/OR More than 50% have carapace damage. AND/OR More than 50% have both nippers missing.	Most of the crabs have very dark brown/yellow discoloured underbellies. OR Very light weight and soft carapace indicating little or no meat. OR Significant shell damage making it unfit for human consumption due to possible meat contamination.

BIVALVE MOLLUSCS

Pipi, Oyster, Mussel, Vongole and all other live bivalve molluscs should be stored and transported in temperatures similar to their natural environment and kept under high humidity conditions.

Processed mollusc products such as roe-off Scallop and Pearl adductor muscle will need to meet the sale classifications and specifications for bivalve molluscs, but be chilled to fresh seafood specifications (-1˚C to +5˚C). Only product from Suppliers who meet the requirements of the Australian Shellfish Quality Assurance Program (ASQAP) will be sold by SFM. Such Suppliers must provide SFM with their respective State Food Authority licence number.

If there is any dead product present sale may be prevented, so careful handling must be ensured.

BIVALVE LABELLING

As per section 22 of the ASQAP manual, which is a legal requirement under the Food Standards Code (standard 4.2.1), all bivalve molluscs must be labelled according to the following criteria:

- Bags or containers of shellfish are identified with a durable waterproof tag or label that is affixed to the exterior of the bag or container.
- Each bag or container of shellfish is tagged or labelled at the time of filling. If the shellfish are harvested at more than one location, each bag or container is tagged or labelled at each harvesting area.
- The tag or label remains affixed to each bag or container of shellfish until the bag or container is emptied.
- The tag or label contains the following legible information:
  - The name of the grower/harvester
  - The unique lease number
  - The name of the harvesting area
  - The date of harvest
  - The type and quality of shellfish
- If the shellfish are removed from the original bag or container for washing, grading, sorting or other processing the processor:
  - Keeps the identification tag label for a minimum period of 90 days
  - Maintains the lot identity of all shellfish during the processing
- During any intermediate stage of processing each lot of shellfish is separated and identified in a way that prevents mixing or misidentification.

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TABLE 5.5 BIVALVE MOLLUSCS PRODUCT SPECIFICATION

ALL CLASSIFICATIONS		
Product Description	Live bivalve shellfish – wild harvest and farmed.	
Composition	Pipis, cockles, mussels, scallops, oysters, clams, vongole or half shell scallops.	
Distribution Conditions	Transport with the required temperature range Live: Sydney Rock Oysters 10-21°C, Pacific oysters 5-10°C, Mussels & Pipis 5-10°C Processed: 0-5°C	
Temperature of Seafood	Live: Sydney Rock Oysters 10-21°C, Pacific oysters 5-10°C, Mussels & Pipis 5-10°C Processed: 0-5°C	
Packaging	Unshucked: in clean plastic SFM crate, insulated foam container or waxed carton. Shucked: insulated container or waxed carton with lid. Pipi's in a hessian sack must also be in a crate. Products must be covered at the point of receival at SFM.	
Labelling	Seafood must have barcode label specifying supplier name & ID, species, processing method net weight, quality grade and size grade where applicable. Species names to be in accordance with the Australian Fish Names Standard: AS SSA 5300. FSANZ statutory information: Food authority number, lease number/harvester area and date of harvest. Exclude scallops, though fishing area should be noted. Shucked shellfish: Use by date of within 3 days.	
Heavy Metal Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.1 & Schedule 19.	
Chemical Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.2 & Schedule 19, 20, 21.	
Microbiological Contamination	Standard Plate Count E.coli Listeria monocytogenes Coagulase +ve Staphylococci Salmonella	<500,000 cfu/g <2.3 cfu/g Not detected in 25g <100 cfu/g Not detected in 25g
Storage	Stored at the required temperature Live: Sydney Rock Oysters 10-21°C, Pacific oysters 5-10°C, Mussels & Pipis 5-10°C Processed: 0-5°C	
Intended Use	Ready for retail sale or processing. Intended for general consumption in accordance with health department recommendations.	
Sensitive Population	Not suitable for people with shellfish allergies.	

TABLE 5.6 SALE CLASSIFICATIONS - BIVALVE MOLLUSCS

	ACCEPTABLE	SEIZE & REJECT
Smell	Fresh seafood smell with no repugnant odour.	Repugnant odour.
Diseases & Parasites	No evidence of disease and parasites, which spoil flesh quality.	Evidence of disease and parasites, which spoil flesh quality.
Contamination	No evidence of contamination e.g. diesel, petrol or mud.	Evidence of contamination e.g. diesel, petrol or mud.

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

SECTION 6: PROCESSED AND IMPORTED PRODUCTS

In recent years there has been a broader range of product categories consigned to Sydney Fish Market. Therefore, product specifications have been developed for these new categories of product. Outlined below are the product requirements for value added Ready To Eat products, products that are processed and products coming from overseas (not including those from New Zealand, which operate under a similar legal framework that uses the FSANZ Food Standards Code).

Due to the higher risk nature of products in these categories these specifications are more onerous than those for other product categories. See tables 6.1– 6.5.

All imported products must comply with federal import requirements before trading through SFM/SFMblue.

TABLE 6.1 VALUE ADDED, READY TO EAT, RETAIL READY PACKAGED PRODUCT SPECIFICATION

ALL CLASSIFICATIONS	
Product Description	Value Added Ready to Eat Products such as such as Sashimi, sea urchin roe, cooked crab meat or cooked peeled prawn.
Composition	Various – Ingredient listing to be present and consistent with legal requirements.
Distribution Conditions	Chilled at –1˚C to +5˚C. (Preferably on a bed of ice or with gel packs/ice blocks).
Temperature of Seafood	Minimum –1˚C Maximum +5˚C
Preparation	Various.
Packaging	In clean foam containers or cartons with product in enclosed food grade inner trays or vacuum packed food grade bags.
Labelling	Product packed in retail format must be labelled consistent with the FSANZ Food Standards Code Requirements, (in particular Standards 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.8, 1.2.9, 1.2.10 and 1.2.11). Also sections 52 and 53 of the Trade Practices Act and the Trade Measurement (Pre-Packed Articles) Regulations. Outer Cartons are to be labelled on the end of the box with an SFM barcode and information regarding the suppler name and SFM account number, product contents, Use by Date, Storage Temperature and Net Weight. Species names to be in accordance with the Australian Fish Names Standard.
Approved Supplier Status	Supplier to hold an approved supplier status with SFM for this product type. To achieve this approval the supplier will have to demonstrate that they hold an appropriate State Food Authority License for the product category and be accredited by a recognised third party audit company to a HACCP based Food Safety Management System that incorporates the use of external audits (with a scope that covers the product category).
Catch or Harvest Area	Seafood has not been caught or harvested in an area notified by the Health Department or NSW Fisheries (or relevant local Fisheries Agency) as having a water quality problem likely to result in seafood that is unsafe to eat.
Heavy Metal Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.1 & Schedule 19.
Chemical Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.2 & Schedule 19, 20, 21.
Microbiological Contamination	Standard Plate Count <10,000 cfu/g E.coli <10 cfu/g Listeria monocytogenes Not detected in 25g Coagulase +ve Staphylococci <100 cfu/g Salmonella Not detected in 25g
Storage	Store in cool room or on ice at –1˚C to +5˚C
Customer Preparation	Ready for retail sale.
Intended Use	Intended for general consumption in accordance with health department recommendations.
Sensitive Population	Not suitable for people with seafood allergies.

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

TABLE 6.2 PROCESSED, RETAIL READY PACKAGED PRODUCT SPECIFICATION

ALL CLASSIFICATIONS	
Product Description	Processed products as fillets or picked uncooked crab meat, which is packaged in a retail ready format such as vacuum packed or in trays.
Composition	Various – Ingredient listing to be present and consistent with legal requirements.
Distribution Conditions	Chilled at –1˚C to +5˚C. (Preferably on a bed of ice or with gel packs/ice blocks).
Temperature of Seafood	Minimum –1˚C Maximum +5˚C
Packaging	In clean foam cartons with product in enclosed inner trays, vacuum packed bags or cartons.
Labelling	Product retails trays or cartons must be labelled consistent with the FSANZ Food Standards Code Requirements, (in particular Standards 1.2.2, 1.2.3, 1.2.4, 1.2.5, 1.2.8, 1.2.9, 1.2.10 and 1.2.11). Also sections 52 and 53 of the Trade Practices Act and the Trade Measurement (Pre– Packed Articles) Regulations. Outer Cartons are to be labelled on the end of the box with an SFM barcode and information regarding the suppler name and SFM account number, product contents, Use by Date, Storage Temperature and Net Weight. Species names to be in accordance with the Australian Fish Names List.
Approved Supplier Status	Supplier to hold an approved supplier status with SFM for this product type. To achieve this approval the supplier will have to demonstrate that they hold an appropriate State Food Authority License for the product category and be accredited by a recognised third party audit company to a HACCP based Food Safety Management System that incorporates the use of external audits (with a scope that covers the product category).
Catch or Harvest Area	Seafood has not been caught or harvested in an area notified by the Health Department or NSW Fisheries as having a water quality problem likely to result in seafood that is unsafe to eat.
Heavy Metal Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.1 & Schedule 19.
Chemical Contamination	Maximum levels permitted (FSANZ Food Standards Code) – Standard 1.4.2 & Schedule 19, 20, 21.
Microbiological Contamination	Standard Plate Count <100,000 cfu/g E.coli <10 cfu/g Listeria monocytogenes Not detected in 25g Coagulase +ve Staphylococci <100 cfu/g Salmonella Not detected in 25g
Storage	Store in cool room or on ice at –1˚C to +5˚C
Customer Preparation	Ready for retail sale.
Intended Use	Intended for general consumption in accordance with health department recommendations.
Sensitive Population	Not suitable for people with seafood allergies.

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

TABLE 6.3 IMPORTED PRODUCT PRODUCT SPECIFICATION (NOT FROM NEW ZEALAND)

ALL CLASSIFICATIONS	
Approved Supplier Program for Imported Products (Non NZ)	Scope: Any product from non – FSANZ Food Standards Code countries i.e.: Not from Australia or New Zealand. Suppliers overseas processing / packing establishments MUST be pre–approved by SFM prior to the acceptance of any product. Approval will be assessed based on demonstration of compliance with recognised Food Safety Management Systems supported by credible 3rd party audited assessments, such as against Codex HACCP, ISO 22000 or BRC (British Retail Consortium) Standards. (With an audit scope that covers the product category being proposed to be sent to SFM). All suppliers shall comply with the SFM's Modern Slavery Policy. Modern Slavery Statement can be found here: www.sydneyfishmarket.com.au/Corporate/Company-Overview/Policies-Reports Prior to approval suppliers will have to also demonstrate the microbiological safety of their products through the provision of satisfactory laboratory results. These will be verified by further testing by SFM prior to Approved Supplier Status being granted. ALL suppliers once approved must then meet the relevant SFM product specification for the type of product being sent.

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SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

SECTION 7: SYDNEY FISH MARKET INCOMING FREIGHT GUIDELINES

Product sent to SFM should be done so complying with SFM's handling guidelines. The intention is to ensure product can be handled in a safe and efficient manner.

PALLET QUALITY

- Wooden pallets should be undamaged and have all boards and bearers intact.
- Uncontaminated by dirt or debris.
- Free from nails protruding from boards.

Pallet Boards missing

Debris

PALLET HEIGHT

- 1200mm for all product arriving on a pallet. This provides the most efficient format, allowing product to be double stacked to maximise freight efficiencies.

Pallet height more than 1.2m.
Pallet should be double stacked.

MAXIMUM PERMISSIBLE HEIGHT

	MAX HEIGHT	SMALL CRATE	LARGE HEIGHT
Product arriving on Pallet	1.2m	6	4
Product arriving without pallet	1.34m	7	5

Maximum stack height:
5 x Large crates without pallet

Maximum stack height:
7 x Small crates without pallet

LABELS

All labels are to be facing the outside of the pallet to enable identification of product.

PALLET CONFIGURATION

Product arriving to SFM must be safe and secure.

- Product should be stacked within the footprint of the pallet.
- Pallets are centered and not leaning or shifted.
- Pallet should be wrapped to secure the products.

APPENDIX 1: KEY BIOLOGICAL HAZARDS

Biological hazards are caused by bacterial intoxication or enzymes. For example, some tropical fish species caught in Australian and neighbouring South Pacific waters may contain toxins (such as Tetrodotoxin, Ciguatoxin, Paralytic Shellfish Poison, Diarrhetic Shellfish Poison, Cyanobacterial toxins, Scrombotoxin, Saxitoxin or Scaritoxin) which can be harmful when eaten.

TETRODOTOXIN

Tetrodotoxin occurs mainly in the skin, liver, ovaries and intestine of many species of Toadfish (or Pufferfish) and Porcupine fish. The muscle is usually safer to eat than other parts of the fish, but at times may be toxic. Toxicity has a strong relationship to the reproductive organs; these are most dangerous to eat during the breeding season.

SFM will not sell the following Australian species, as they have been reported as causing death:
Smooth Toadfish *(Tetratenos glaber)*
Silver Toadfish *(Lagocephalus sceleratus)*
Starry Toadfish *(Arothron firmamentum)*

Note: Other genera of Toadfish, Toby and Porcupine fish such as *Diodon sp. and Canthigaster sp.* are also known to be poisonous and are not sold at SFM.

CIGUATOXIN

Ciguatoxin is believed to be produced by an algal Dinoflagellate (*Gambierdiscus toxicus*) that grows on the surface of coral reefs and is a source of food for herbivorous fish. These herbivores accumulate the toxin, which is passed on to larger carnivorous species when they eat the smaller fish.

Dinoflagellates settle and establish on newly exposed reef surfaces. Consequently Ciguatoxin cases often occur in areas where reefs have been destroyed by recent storms or damaged in some way. Ciguatoxin cases may arise in a certain area, in a particular species and/or at a certain season during the year, and its occurrence is extremely difficult to predict.

SFM does not sell any of the following species:
- Chinamanfish (*Symphorus nematophorus*)
- Paddletail (*Lutjanus gibbus*)
- Red Bass (*Lutjanus bohar*)
- Giant Moray (*Gymnothorax javanicus*)
- Tripletail Maori Wrasse (*Cheilinus trilobatus*) & Humphead
- Maori Wrasse (*Cheilinus undulatus*)
- Toadfish/Pufferfish (All *Tetraodontidae* family members)

Several other species have been reported to show Ciguatoxin occasionally and, depending on the place of origin and the season, may still be sold. They are:
- Surgeonfish (All *Acanthuridae* family members)
- Flowery Rockcod (*Epinephelus fuscoguttatus*)
- Yellowtail Kingfish and Samsonfish (*Seriola spp.*)
- Spanish Mackerel (*Scomberomorus commerson*)
- Coral Trout (*Plectropomus spp.* and *Variola spp.*)
- Parrot fish (All *Scaridae* family members)

SFM recommends that buyers remove livers or any organs of the high ciguatera risk species before sales to lower the risk to end consumers.

SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

SCHEDULE OF CIGUATERA HIGH-RISK AREAS & SPECIES SIZE LIMITS

A) PROHIBITED SPECIES – TO BE REJECTED	
• Chinamanfish (*Symphorus nematophorus*) • Tripletail Maori Wrasse (*Cheilinus trilobatus*) & Humphead • Humphead Maori Wrasse (*Cheilinus undulatus*) • Red Bass (*Lutjanus bohar*) • Paddletail (*Lutjanus gibbus*) • Giant Moray (*Gymnothorax javanicus*)	
A) PROHIBITED SPECIES – TO BE REJECTED	
REGION	**SPECIES**
Kiribati	All warm water ocean fish
The following Queensland waters: • Platypus Bay on Fraser Island; bounded by the co-ordinates: GPS South 25 – 01 – 991; North 153 – 11 – 761	• All warm water ocean fish • Spanish Mackerel (*Scomberomorus commerson*) • Mackerels (*Scomberomorus spp*) – excluding spotted and school mackerel under 6 kg.
Marshall Islands	All warm water ocean fish
New Caledonia and Capel Bank	All warm water ocean fish
The following Northern Territory waters: • Bremer Island • Bonner Rocks • Miles Island • Immediate vicinity of Cape Arnhem • North East Island and Connexion Island (both near Groote Eylandt) • Gove Peninsula, in the immediate vicinity of Nhulunbuy	The following species • Pickhandle Barracuda (*Sphyraena jello*) • Coral Cod (*Cephalopholis spp*) • Coral Trout (*Plectropomus spp*) • Red Emperor (*Lutjanus sebae*) • Queensland Groper (*Epinephelus lanceolatus*) • Trevally (*Caranx spp*)
Fijian waters	• Coral Trout (*Plectropomus spp*)

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

C) MAXIMUM SIZE LIMIT FOR HIGH-RISK SPECIES					
Species	Size Limit				
	NSW	QLD	NT	WA	Pacific Countries
Pickhandle Barracuda (*Sphyraena jello*)	N/A	10 kgs	N/A	N/A	10 kgs
Coral Rockcod (*Cephalopholis miniata*)	N/A	3 kgs	N/A	N/A	3 kgs
Coral Trout (*Plectropomus spp*)	6 kgs	6 kgs	6 kgs	6 kgs	Reject
Kingfish (*Seriola spp*)	N/A	10 kgs	N/A	N/A	10 kgs
Mackerel (various) (*Scomberomorus spp*)	10 kgs whole of 8 kg for headed and gutted fish	10 kgs whole of 8 kg for headed and gutted fish	N/A	N/A	10 kgs
Giant Queenfish (*Scomberoides commersonnianus*)	N/A	10 kgs	N/A	N/A	10 kgs
Green Jobfish (*Aprion Virescens*)	10 kgs	10 kgs	N/A	N/A	Reject
Red Emperor (*Lutjanus sebae*)	N/A	6 kgs	N/A	N/A	6 kgs
Reef Cods • Goldspotted Rockcod (*Epinephelus coioides*) • Flowery Rockcod (*Epinephelus fuscoguttatus*) • Queensland Groper (*Epinephelus lanceolatus*) • Greasy (Spotted) Rockcod (*Epinephelus tauvina*)	N/A	10 kgs	N/A	N/A	10 kgs
Lined Bristletooth (Surgeon Fish) (*Ctenochaetus striatus*)	N/A	10 kgs	N/A	N/A	Reject
Spangled Emperor (*Lethrinus nebulosus*)	N/A	6 kgs	N/A	N/A	6 kgs
Spanish Mackerel (*Scomberomorus commerson*)	10 kgs whole of 8 kg for headed and gutted fish	10 kgs whole of 8 kg for headed and gutted fish	N/A	N/A	10 kgs
Trevally (*Caranx spp*)	N/A	6 kgs	N/A	N/A	6 kgs
Tuskfish (*Choerodon spp*)	N/A	6 kgs	N/A	N/A	6 kgs

This specification will be amended from time to time. To obtain a copy of the most recent version, please visit the website https://www.sydneyfishmarket.com.au/Seafood-Trading/Quality/Food-Safety.

SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

APPENDIX II: QUOTA, PROTECTED & PROHIBITED SPECIES

SFM is not required to monitor the quota restrictions applied to many species. If you have any doubts about licences, quota or whether a species is protected, you should check with your local fisheries officer or telephone your relevant State or Territory Fisheries Department or the Australian Fisheries Management Authority for commonwealth fisheries issues.

Also note that SFM has implemented a policy regarding Shark Fins: https://www.dpi.nsw.gov.au/fishing/closures/identifying

Refer to NSW DPI or your state regulator for full details on the listed protected species and threatened species. SFM will seize any protected species received and notify relevant authorities, in line with our obligation as fish receiver.

Large sharks captured in Australian waters, regardless of jurisdiction, must be landed with fins attached to the shark trunk. Whilst Commonwelath and State regulations differ in terms of the recording of shark catches, landed sharks must be verified by the first receiver before fins can be detached from the trunk.

As Sydney Fish Market Pty Ltd (SFM) is not always the first receiver, it is difficult for its operational staff to accurately ascertain the validity of shark fins received for auction.

The following table details SFM's evaluation process for accepting certain large shark and shark fins:

	FIRST RECEIVER	SECOND OR SUBSEQUENT RECEIVER
FINS ONLY	NOT ACCEPTABLE	NOT ACCEPTABLE
TRUNKS WITH NO FINS	NOT ACCEPTABLE	ACCEPTABLE
FULL BODIES/TRUNKS AND MATCHING FINS IN A SEPARATE CONTAINER	ACCEPTABLE	ACCEPTABLE

Your assistance in adhering to the above table is strongly advised.

Failure to do so will result in SFM rejecting and returning the shipment to you.

APPENDIX III: PROCESS CODES

PROCESS CODE	DESCRIPTION
BL	Bladder – swim/air/gas/maw/sound
C	Cooked
CS	Cooked Soft
CT	Cutlets
CV	Cryovac Packed
DS	De-sanded
FC	Frozen Cooked
FF	Frozen Fillets
FG	Frozen Green
FI	Fillets
FM	Frozen Meat
FN	Fillets Skin On
FO	Fillets Skin Off
FR	Frozen Roe
FS	Frozen Soft
FZ	Frozen
GG	Gilled Gutted
GH	Gutted Head off
GI	Ice Slurry Gutted
GR	Green
GS	Green Soft
GU	Gutted
HE	Heads
HS	Half Shell

PROCESS CODE	DESCRIPTION
IG	Ice Slurry Gilled & Gutted
IJ	Ike Jime
IS	Ice Slurry
LC	Line Caught
LO	Loins
LV	Live
ML	Mixed Legs
MT	Meat
OL	One Leg
RE	Resold Product
RN	Roe On
RO	Roe
SA	Sashimi
SB	Fillets Skinned & Boned
SH	Shell
SK	Smoked
SO	Skin Off
TA	Tails
TB	Tubes
TM	Tumbled
WH	Whole
WI	Wing On
WN	Wings
WO	Wing Off

APPENDIX IV: SIZE CODES

SIZE	DESCRIPTION
A	A size
B	B size
C	C size
D	D size
E	E size
F	F size
G	G size
H	H size
I	I size
J	Jumbo
L	Large
M	Medium
S	Small
V	Extra Small
X	Extra Large

SYDNEY FISH MARKET SEAFOOD HANDLING GUIDELINES

APPENDIX V: SIZE GRADING SCHEDULE

SCALE FISH	NSW LEGAL SIZE (cm)	XS (cm)	S (cm)	M (cm)	L (cm)	XL (cm)	Jumbo (cm)
Alfonsino			<35	35-40	>40		
Amberjack			60-74	75-89	90-104	105-119	
Anchovy			<7	7-8	>8		
Barramundi - Farmed		A) <400g, B) 400-499g, C) 500-599g, D) 600-799g, E) 800-999g, F) 1000-1499g, G) 1500-1999g, H) 2000-2999g, I) 3000-4999g, J) 5000-7000g					
Barramundi - Wild					>60 (or 10kg)	>75	
Biddies - Silver			<14	14-16	17-19	>19	
Boarfish - Giant			<35	35-39	40-44	>44	
Bonito - Australian			<37	37-39	40-43	>43	
Bream – Threadfin			19-23	24-28	29-33	>33	
Bream - Yellowfin	25		25-29	30-34	35-45	>45	
Brill			175-249g (A)	250-324g (B)	325-399g (C)	400g+ (D)	
Carp - European			<45	45-50	>50		
Catfish – Giant Sea			<35	35-40	>40		
Dory - John			<24	24-30	31-40	>40	
Dory - Mirror			<37	37-41	42-47	>47	
Dory - Silver			<24	24-30	31-40	>40	
Emperor - Red			<50	50-54	55-60	>60	
Flathead - Dusky	36		33-39	40-49	50-59	60-70	
Flathead - Blue Spotted & Tiger	33			33-37	38-45	>45	
Flounder - Sand (NZ)			175-250g (A)	251-400g (B/C)	401-500g (D)	500g+ (D+)	
Flounder - Smalltooth (NSW)	25		<25	25-32	>32		
Flounder - Yellowbelly (NZ)			175-325g (A/B)	326-500g (C/D)	501-700g (D+)	700g+ (EFGH)	
Garfish – Sea			<28	28-30	31-35	>35	
Garfish - River			<24	24-28	>28		
Garfish - No Bill			<24	24-28	>28		
Gemfish			<50	50-60	>60		
Goatfish - Bluespot		<10	10-14	15-19	20-25	>25	
Grenadier - Blue (GH)			<50	50-55	>55		
Groper - Bass			<50	50-70	>70		
Gurnard - Red			<35	35-39	40-45	>45	
Hapuku			<60	60-100	>100		
Jacket - Ocean (GH)			<23	23-25	>25		
Kingfish - Yellowtail	65		60-74	75-89	90-106	>106	
Latchet			<35	35-39	40-45	>45	
Ling - Pink		<40	40-49	50-67	68-90	>90	
Luderick	27		25-29	30-34	>34		
Mackerel - Blue			15-18	19-21	22-25	26-29	>29
Mackerel - Grey			<80	80-90	>90		
Mackerel - Spanish	75		<80	80-90	>90		
Mackerel - Spotted	60		<60	60-69	70-80	>80	
Murray Cod - Farmed		A) <400g, B) 400-499g, C) 500-599g, D) 600-799g, E) 800-999g, F) 1000-1499g, G) 1500-1999g, H) 2000-2999g, I) 3000-4999g, J) 5000-7000g					
Morwong - Grey	30		28-33	34-39	40-45	>45	
Morwong - Jackass	30		28-32	33-38	39-43	>43	
Morwong - Red	30		30-33	34-37	38-41	>41	

SCALE FISH	NSW LEGAL SIZE (cm)	XS (cm)	S (cm)	M (cm)	L (cm)	XL (cm)	Jumbo (cm)
Mullet - Sea			30-35	36-40	41-45	>45	
Mulloway	70		70-79	80-90	>90		
Murray Cod - Farmed		A) <400g, B) 400-499g, C) 500-599g, D) 600-799g, E) 800-999g, F) 1000-1499g, G) 1500-1999g, H) 2000-2999g, I) 3000-4999g, J) 5000-7000g					
Perch – Bigeye Ocean			<23	23-29	30-36	>36	
Perch - Golden			<35	35-40	>40		
Perch - Pearl	30		<35	35-40	41-46		
Perch - Reef Ocean			22-26	27-30	31-35		
Perch - Redfin			<30	30-35	>35		
Perch – Silver (Aqua)			300-450 g	451-550 g	551-700g	701-850g	>850g
Pigfish - Eastern			<25	25-35	>35		
Redfish		<23	23-25	26-29	30-35	>35	
Rockcod - Bar			<45	45-50	>50		
Roughy - Orange			27-30	31-40	>40		
Salmon - Australian			<35	35-50	>50		
Samsonfish			60-74	75-89	90-106	>106	
Scad - Yellowtail			<20	20-23	24-27	>27	
Scat - Striped			<25	25-29	30-35	>35	
Scorpionfish – Eastern Red			<20	20-25	>25		
Snapper	30		28-33	34-47	48-55	>55	
Snapper - Goldband		<1000g	1000-1999g	2000-3000g	>3000g		
Sole - Black	25		<20	20-25	>25		
Sole - New Zealand			175-325g (A/B)	326-500g (C/D)	501-700g (D+)	700g+ (EFGH)	
Sole - Tongue			24-26	27-32	>32		
Sweep - Silver			<25	25-30	>30		
Swordfish - Broadbill			<20kg	20kg-40kg	>40kg		
Tailor	30		<35	35-40	41-50		
Tarwhine	20	<20	20-24	25-30	>30		
Teraglin	38	<38	38-40	41-44	>44		
Threadfin - King			<40	40-60	>60		
Tilefish			<30	30-35	36-45		
Trevalla – Blue-eye			<50	50-70	>70		
Trevally - Silver	30	<30	30-34	35-39	40-44	>44	
Trout – Common Coral			<1000g	1000-1499g	1500-2499g	2500-3499g	3500-6000g
Tuna - Bigeye	90		<20kg	20-40kg	>40kg		
Tuna - Yellowfin	90		<20kg	20-40kg	>40kg		
Warehou - Silver			<40	40-45	46-55		
Whiting – Eastern School			<18	18-22	23-26	>26	
Whiting - King George			<35	35-38	>38		
Whiting - Sand	27		27-30	31-34	35-40	>40	
Whiting - Trumpeter			<23	23-25	>25		

SHARKS/RAYS	NSW LEGAL SIZE (cm)	XS (cm)	S (cm)	M (cm)	L (cm)	XL (cm)	Jumbo (cm)
Angel			<50	50-70	>70		
Dogfish – Green-eye			<50	50-59	60-69	70-100	
Ray - Eastern Fiddler (Guitarfish)			<50	50-70	>70		
Ray – Eastern Shovelnose / Gummy shark			40-50	51-60	>60		
Whaler (dressed)			>60	60-80	>80		

MOLLUSCS & CRUSTACEANS	NSW LEGAL SIZE (cm)	XS (cm)	S (cm)	M (cm)	L (cm)	XL (cm)	Jumbo (cm)
Abalone - Blacklip	11.7		250-350g	351-450g	451-550g	551-650g	651-750g
Bug - Balmain	10		> 15/kg	11-15/kg	6-10/kg	<6/kg	
Crab – Blue Swimmer (notch-notch)		cm - A) <11.0, B) 11.0-11.7, C) 11.8-12.4, D) 12.5-13.2, E) 13.3-14.0, F) 14.1-14.9, G) >14.9					
Crab – Blue Swimmer (eyes to tail)	6.5	cm - A) <6.3, B) 6.3-6.7, C) 6.8-7.2, D) 7.3-7.7, E) 7.8-8.2, F) 8.3-8.8, G) >8.8					
Crab – Mud (eyes to tail)	8.5		<800g	800g-1.0kg	1.1-1.4kg	>1.4kg	
Crab – Spanner (eyes-tail)	9.3		9.3-10.1	10.2-10.9	11.0-12.5	>12.5	
Cuttlefish			<10	10-16	17-24	>24	
Lobster - Eastern Rock	10.4-18.0		<700g	700g-1.1kg	1.2-1.7kg	>1.7kg	
Lobster - Southern Rock	11 (Male) 10.5 (Female)	A) 340-450g, B) 451-560g, C) 561-680g, D) 681-800g, E) 801-910g, F) 911-1130g, G) 1131-1360g, H) 1361-1820g, I) >1820g					
Lobster - Western Rock		A) 450- 459g, B) 460-570g, C) 571-690g, D) 691-800g, E) 801-910g, F) 911-1140g, G) >1140g					
Mussel - Blue			>40/kg	26-40/kg	15-25/kg	<15/kg	
Octopus		<100g	100-299g	300-899g	900g-2kg	2kg+	
Oyster – Sydney Rock			>22/kg	17-22/kg	11-16/kg	<10/kg	
Pipi			>60/kg	51-60/kg	41-50/kg	35-40/kg	
Prawn - King			>60/kg	40-60/kg	30-39/kg	20-29/kg	<20/kg
Prawn - Tiger (Aqua)			>66/kg	46-66kg	36-45/kg	22-44/kg	<22/kg
Prawn - School		150-180/500g	121-150/500g	81-120/500g	45-80/500g	<45/500g	
Red Claw		25-30g	31-50g	51-70g	71-100g	101-120g	121-150g
Squid – Goulds' (tube length)			<25	25-30	>30		
Squid - Loligo			<11	11-16	>16		
Squid - Southern Calamari			<18	18-32	>32		

All fish are measured according to total length.

- All Squid/Calamari are measured by body/tube length.
- Product not conforming with these grades, such as a box of mixed–size fish, should not be assigned a size grade.
- Seafood that falls between ranges will be moved up to the next size however, if the crate contains some fish which are at the upper level of one grade and the lower level of the next grade, the fish may be described using both levels e.g. small to medium, medium to large.
- NSW legal size limit is applying to seafood caught in NSW.

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